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ABSTRACT

To investigate differences in social behavior between learning disabled (LD) and non-learning disabled (NLD) children in different size groups and to examine the association between children's social behavior and acceptance by their peers, a study was conducted of 44 LD and 50 NLD boys and 7 LD and 13 NLD girls from fourth, fifth, and sixth grade classrooms in Toronto, Ontario, Canada. The children were videotaped constructing an art project during two sessions: first, in same-sex dyads, one-third of which were both LD, one-third both NLD, and another third mixed; and again in same-sex groups of six containing both LD and NLD children. In general, LD children behaved less competently than NLD children in both dyads and groups, although both LD and NLD behavior was related to gender, group size, and peer acceptance. Specific findings included the following: (1) NLD boys tended to ignore the LD boys in dyads and to engage them in the activity through instructions in groups, while NLD girls tended to positively interact with LD girls in dyads but ignore them in groups; (2) negative remarks by LD boys were less evident in dyads than in groups, while LD girls engaged in high levels of giggling in dyads but were extremely passive in the group situation; and (3) for both boys and girls, more active NLD children were more liked, while more active LD children were less liked. Detailed findings for dyads and groups by sex and an inventory of verbal exchanges are appended. (BYC)

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Social Interaction of Children with and without Learning Disabilities in Dyads and Small Groups

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The lower peer acceptance of children with learning disabilities (LD) relative to their non-learning disabled (NLD) classmates has been a consistent finding in the literature. Recent studies have indicated that LD children are less likely to be popular and more likely to be rejected and neglected (Stone & LaGreca, 1990; Wiener, 1987; Wiener, Harris & Shirer, 1990). This increased rejection and neglect has generally been attributed to social behavioural differences between LD and non-learning disabled (NLD) children. Consequently, several studies have been conducted by Tanis Bryan and her colleagues examining the behaviour of LD children when interacting with NLD children in dyads and small groups (eg., Bryan, Cosden & Pearl, 1982; Smiley & Bryan, 1983). These studies have found that mixed dyads comprised of 1 LD and 1 NLD boy engaged in less interactive behaviour and more often ignored or resisted initiations than dyads composed of 2 NLD boys. Further, dyads with two LD children engaged in more negative (hostile and aggressive) interactions and were more often off-task than their NLD counterparts.

The next step in this research is to examine more specifically the reciprocal relationships of LD and NLD children. Dodge, Pettit, McClaskey and Brown (1986) proposed a model of social exchange in which the social behaviour of children who are interacting with each other is influenced by their cognitive processing of the stimulus situation and their processing of the other child's social behaviour. Lynn Zarbatany (personal communication) has proposed, although more specifically in regard to peer group entry, that the children's processing, and hence their behaviour, may be influenced by person factors (such as age, gender, socialization history, or presence of a disability), the context in which the interaction occurs (including the physical location, the nature of the activity, and group size), and relationship factors involving the content, quality and patterning of past interactions. Consequently, our program of research has been devoted to investigating the differences in social behaviour between LD and NLD boys and girls interacting in same-sex dyads and groups of six, and to examine the association between the children's social behaviour in the different contexts and peer status.

Method

In this paper we describe a set of studies in which LD and NLD boys and girls engaged in the same cooperative play task in dyads and groups of six . The sample comprised 44 LD and 40 NLD boys and 7 LD and 13 NLD girls who were taken from 54 fourth, fifth and sixth grade classrooms in 15 suburban schools near Metropolitan Toronto. The LD children were defined on the basis of school identification and significantly below average achievement scores on the Reading subtest and/or the Arithmetic and Spelling subtest of the Wide Range Achievement Test-Revised, using a set of criteria adapted from Siegel and Heaven (1986). Actual mean achievement scores were 10th percentile or lower on all three subtests. The NLD children had scores in the average range on all three subtests of the WRAT-R with mean achievement scores between the 49th and 58th percentile. All children in the sample had WISC-R estimated IQ scores greater than 80.

To measure peer status, we employed the composite positive and negative nomination sociogram developed by Coie, Dodge and Coppotelli (1982). Our social interaction task was adapted from one used by Anderson (1985). The children were videotaped during two 10 minute sessions during which they were asked to work together to build a three-dimensional object of their choice using "junk" materials. The children worked in same-sex pairs during the first session and in same-sex groups of six for the second session. Approximately one-third of the dyads were composed of two LD children, one-third of two NLD children, and one-third of one LD and one NLD child. The groups of six typically consisted of three LD and three NLD children, although some had combinations of 2 and 4. We chose this specific task because it appeared to be an analogue to activities children of this age do in cooperative learning groups in classes such as art, and because the severe reading and math deficits of the LD children should not affect their performance.

In order to perform the task, children were withdrawn from their classrooms to a classroom set up for the purpose. They worked standing up at a rectangular table. The materials included scissors, masking tape, pipe cleaners and cylinders (from toilet paper and paper towel rolls) in a variety of sizes. The children were instructed by a female research assistant that they had ten minutes to decide on a structure to build and construct it. They were specifically told that they had to work together as a group. The research assistant then videotaped the children for ten minutes using a camera mounted on a tripod approximately 10 feet from the work table.

Prior to coding the data, we compiled a list of affiliative, agonistic, altruistic and conversational events. Our sources included the work of Dodge, Strayer and his colleagues, Gottman and Parkhurst, and Tanis Bryan. When behaviours occurred less than five times for the entire sample, we either dropped them or combined two similar categories. Inter-rater reliabilities were over 90% for each of the four studies. The Verbal Exchange Inventory has been handed out to you because you will need to refer to it in interpreting results.

Results

Due to the violation of the normalcy assumption in the data, we used non-parametric statistics (Mann-Whitney U tests, Kruskal-Wallis one-way analyses of variance, and Kendall rank correlational analyses). We analysed behaviours occurring more than 30 times for the sample in each of the four studies.

We first analysed the data to determine whether there are gender differences by examining those behaviours which met the criterion of 30 times for both girls and boys. As nearly 75% of these comparisons were significant, with girls initiating more often than boys, boys' and girls' data were separated for further analyses.

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In a paper of this length it is impossible to present the quantitative data on which our conclusions are based. For those interested, Pat Harris and I are giving a poster session on Sunday morning where the data for the boys' groups of six will be presented. Instead, today I shall try to convey how typical dyads and groups performed through verbal description.

I shall now report on the results of the studies. For each of boys' and girls' dyads and groups I shall discuss the differences in behaviour of LD and NLD children. I shall then report on the differences in interaction patterns when dyads, including dyadic interactions within groups, are composed of 2 LD children, 2 NLD children, or are mixed. Finally, I shall present partial correlations of the behaviours with peer preference for LD and NLD children.

SLIDE 1-	Boys' dyads	a) LD/NLD differences
		b) Dyad type comparisons
		c) Correlations with peer preference
SLIDE 2-	Girls' dyads	a) LD/NLD differences
		b) Dyad type comparisons
		c) Correlations with peer preference
SLIDE 3	Boys' groups	a) LD/NLD differences
		b) Dyadic interactions within groups
		c) Correlations with peer preference
SLIDE 4	Girls' groups	a) LD/NLD differences
		b) Dyadic interactions within groups
		c) Correlations with peer preference

Conclusion

The results of the four studies taken together show that consideration of LD/NLD differences in functioning on a cooperative task does not properly describe or explain what is happening. As suggested by Zarbatany, consideration of gender differences, context (in this instance in terms of group size) and relationships (ie., whether interacting with an LD or NLD child and the peer acceptance of the child) enhances the picture considerably.

Although there were many gender differences in the social behaviour of the children in the dyads and groups, of most interest was the finding that the pattern of interaction of NLD girls with an LD peer was quite different from the pattern for boys, and that context (ie., size of group) made a difference. As has previously been found in the literature, boys tended to be more task oriented, and girls more relationship oriented (Borja-Alvarez, et. al., 1991). Most of the NLD children knew that the LD children were from a special education class or received assistance in the resource room. The NLD children generally did not know the LD children as well as they knew most of their other classmates. Further, the LD children were much more likely to be neglected and rejected and much less likely to be popular than the NLD children (Wiener, Harris & Shirer, 1990).

The reaction of NLD boys in the situation of interacting with a less competent peer in a dyadic context often was to ignore the LD children. In the groups of six, the NLD boys were task oriented and tried to engage the LD boys in the cooperative task through the use of instructions and directions. In dyads, NLD girls typically made efforts to include the LD girls by asking lots of questions and by responding to LD girls' contributions with visual acknowledgements and agreement. In groups, however, where they also had the opportunity to interact with their NLD peers and where their peers might disapprove of their helpful behaviour with a less competent peer,

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NLD girls virtually ignored the LD girls. Thus, NLD boys and girls appear to react differently when forced to interact with a less familiar, often less socially competent child who is identified as having a learning disability.

Size of group also seemed to affect the behaviour of the children. NLD boys engaged in task-oriented collaborative behaviour in both contexts. In the dyads, the self centred statements, sarcasm and derogatory remarks, and object-position struggles on the part of the LD boys were not as evident as in the group situation. NLD girls gave directives and suggestions more often in dyads than in groups where they tended to make self descriptive statements about their actions. LD girls engaged in high levels of giggling in dyads, especially in LD/LD dyads, and seldom smiled, laughed or giggled in the groups. LD girls were extremely passive in the group situation.

For both girls and boys, more active NLD children were more liked whereas more active LD children were less liked. In the case of NLD boys, task-oriented and assertive behaviours were positively correlated with peer preference. In dyads, more liked LD boys were more often responded to by their peers. Not surprisingly, object position struggles were negatively correlated with peer preference in LD boys interacting in groups.

We realize that the picture we have painted is detailed and complex. Although there is no doubt that LD children behaved less competently than NLD children on the task in both dyads and groups, it is also important to recognize that LD children's behaviour differed by gender and context, and NLD children's reaction to their behaviour differed by gender and context. Further, LD children also behaved differently when interacting with each other than with NLD children, and these differences were also affected by gender and group size. Finally, it is of interest to note that almost the same behaviours were positively correlated with peer preference for NLD children and negatively correlated with peer preference for LD children.

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BOYS' DYADS

1a) LD/NLD Differences

-LD more likely to request clarification than NLD
-NLD boys are more likely to get a response to their directives, suggestions, provision of information, and questions than LD
-LD more likely to receive no response to their questions or efforts for visual contact than NLD
-NLD more likely to receive suggestions, questions, and information from a partner than LD
-NLD are more likely to respond to suggestions, questions and information they receive from a partner than LD, but are less likely to respond to a directive than LD
-specifically, NLD are more likely to agree to instructions and suggestions they receive, respond to questions with conclusive information or a visual acknowledgement, and to respond to information received with a visual acknowledgement than LD
-also NLD are more likely to respond to initiations with an agreement or a visual response than LD

Thus, LD boys functioning in dyads are less active in initiating (except for requesting clarification), and less likely to respond to others' initiations unless these are directives which explicitly require a response.

1b) Dyad Type Comparisons

NLD/NLD compared to mixed

- more active: more directives, suggestions, questions, and informational statements
- higher frequency of conversation maintaining strategies such as establishing visual contact, asking questions, and responding to partner's statements and questions
- most frequently the response was just a visual acknowledgement or a verbal agreement (eg., ya), but other more frequent responses included providing conclusive information and smiling or laughing

LD/LD compared to mixed

- more active: more questions, requests for clarification, and offering or showing
-responses to questions more often included provision of conclusive information or no response, and no response was more often given to offering and showing
-less frequent sequences of no response by LD children to directives or suggestions
-much higher frequency of sequences of smiling and laughing

Thus, in the dyads the LD boys seemed more comfortable in initiating to each other than to NLD children but still often did not respond to the initiations of their LD partner. Also LD boys' initiations did not often include suggestions, directives or provision of information, even with each other.

1c) Correlations with Peer Preference

NLD
more preferred children were more likely to:
-give directives and to get a response, usually in the form of an agreement
-receive an agreement, even in response to a Me statement

-receive a visual response to a narration

more preferred children were less likely to:
-receive no response to their suggestions
-smile or laugh

LD
more preferred children were more likely to:
-receive a visual response to their suggestions
-receive an agreement to a Me statement
-receive a request for clarification

more preferred children were less likely to:
-receive no response to a narration
-give their opinion

Thus, in dyads, more preferred LD and NLD boys were more likely to have their initiations responded to.

GIRLS' DYADS

2a) LD/NLD Differences

-LD more likely to smile/laugh than NLD
-NLD more likely to give directives, to agree and to ask questions than LD
-NLD more likely to have questions responded to, and for those responses to be conclusive information or agreement
-NLD more likely to have their initiations responded to with a Me response or information than LD
-NLD more likely to respond when they receive agreement and to make a suggestion in response to the initiation of their partner

Thus, in dyads, with the exception of smiling and laughing, NLD girls were more active in initiating and responding.

2b) Dyad Type Comparisons

NLD/NLD Compared to Mixed

-less likely to engage in visual contact with no response

LD/LD Compared to Mixed

-much more likely to engage in smile/laugh (giggle sequences)
-otherwise less active: less likely to initiate agreement statements, me statements and questions, and to respond to questions
-specifically, less likely to respond to questions with conclusive information, agreement or visual acknowledgement
-also less likely to respond to any behaviour with a suggestion or Me statement

Thus, the pattern for mixed dyads of LD/NLD girls differs from boys. The NLD boy did not typically try to engage the LD boy; the mixed groups performed more

like the LD/LD groups than the NLD/NLD. NLD girls, on the other hand, tried to engage the LD girls by asking questions, and by responding to the LD girls' questions and other initiations with agreement and visual acknowledgement. The mixed dyads of girls performed more like NLD/NLD than LD/LD.

2c) Correlations with Peer Preference

NLD
more preferred children were more likely to:
-receive a visual response to their questions

more preferred children were less likely to:
-receive no response to a Me statement or an information statement

LD
more preferred children were less likely to:
- provide information in response to any initiation
-agree when asked a question

Thus, the pattern for NLD girls is similar to boys other than fewer correlations are significant, probably due to less statistical power. I find the pattern of correlations with peer preference for LD girls difficult to interpret.

BOYS' GROUPS

3a) LD/NLD Differences

-NLD more likely to give directives and instructions and to have directives receive no response and instructions receive a response, mainly in the form of agreement, than LD
- NLD more likely to make a We statement and have it not responded to as well as to make suggestions in response to any initiation
-NLD more likely to provide a response, especially a visual response to a Me statement than LD
-NLD more likely to respond to an information statement than LD and for that response to be disagreement or another information statement
-LD more likely to give a Me initiation followed by no response, have narrations followed by visual acknowledgement and questions followed by an inconclusive statement (eg., I don't know)
-LD more likely to receive more instructions and to respond with a question to any initiation

Thus, NLD boys are both oriented to the task and promoting group collaboration on the task. LD boys appear to be more self-centred in their approach.

3b) Dyadic Interactions Within Groups

NLD/NLD Compared to Mixed

-when talking to other NLD boys, NLD boys are more likely than LD boys to give more instructions and have them agreed and responded to, and make more We statements, including those not responded to
-when addressed by other NLD boys, NLD boys are more likely than LD boys to provide a directive, give a visual acknowledgement to a haftawanna statement, and to disagree with information received

-when talking to other NLD boys, NLD boys are less likely than LD boys to use Me statements and to have them followed by a response, especially a visual response, to make sarcastic or derogatory remarks followed by visual acknowledgement, and to ask questions which are followed by visual acknowledgement
-when addressed by other NLD boys, NLD boys are less likely than LD boys to receive instructions and respond to them, and to respond to initiations with a Me statement

LD/LD Compared to Mixed

-LD boys are more likely to initiate to NLD boys and receive a response to those initiations from NLD boys than they are to initiate to and receive a response from LD boys
-when talking to other LD boys, LD boys are more likely than NLD boys to give directives followed by disagreement and to respond to any initiation with a directive, to make a Me statement followed by no response, and to have information statements followed by a smile/laugh
-when addressed by other LD boys, LD boys are more likely than NLD boys to be engaged in object position struggles and to retain the item
-when talking to other LD boys, LD boys are less likely than NLD boys to give directives or instructions, especially those responded to by agreement, to have their initiations responded to with a suggestion, and to have Me statements responded to with agreement
-when addressed by other LD boys, LD boys are less likely than NLD boys to receive directives and respond to them, especially with visual acknowledgement, receive and respond to Me statements, especially with agreement and a visual reponse, to receive information and to respond to it, especially with disagreement and information, to respond to any initiation with information or agreement, to receive and accept help, and to provide visual acknowledgement to any initiation

These data show that in groups NLD boys tend to be oriented to collaborating on the task. LD boys not only are less task oriented, but are also more likely to disagree, compete, and make self-centred statements. LD boys are more likely to initiate to NLD boys than to their LD counterparts. LD boys are also more often the recipients of directives and instructions from NLD boys than they are from other LD boys.

3c) Correlations with Peer Preference

NLD
more preferred children were more likely to:
-initiate behaviours
-give directions, instructions, opinions and suggestions
-make hafta/wanna statements

LD
more preferred children were less likely to:
-initiate behaviours
-give directions and ask questions
-make We and Me statements
-provide information and give opinions
-smile/laugh
-engage in object position struggles

Thus, preferred NLD boys were active, assertive and task-oriented. More accepted LD boys tended to be passive.

GIRLS' GROUPS

4a) LD/NLD Differences

-NLD more likely than LD to initiate and to have initiations responded to with agreement, acknowledgement, and information
-NLD more likely than LD to give information, make group-oriented (We) statements, and give opinions, and to have each of these responded to than LD
-NLD more likely to be initiated to, especially in the form of suggestions and questions than LD, and to respond to the suggestions with agreement

Thus, NLD girls are more active participants in the group situation. Unlike the LD boys, LD girls did not make many self-centred (Me) statements.

4b) Dyadic Interactions Within Groups

NLD/NLD Compared to Mixed

-when interacting with NLD girls, NLD girls are more likely than LD girls to initiate and get a response, especially agreement, suggestion and information responses
-specifically, when interacting with NLD girls, NLD girls are more likely than LD girls to make group focussed We statements, give information and opinions, have these responded to, and make suggestions which are agreed to
-when addressed by an NLD girl, NLD girls are more likely than LD girls than to be asked a question and to respond to it

LD/LD Compared to Mixed

-when talking to LD girls, NLD girls are more likely than LD girls to give opinions and have then responded to, and have their initiations disagreed with
-when addressed by an LD girl, NLD girls are more likely to respond with disagreement than LD girls
-when addressed by LD girls, NLD girls are more likely than LD girls to receive, but not respond to suggestions and Me statements
-when addressed by LD girls, LD girls are more likely than NLD girls to receive an information statement and respond to it

Thus, in groups, the NLD girls mainly interacted with each other, infrequently addressing or involving the LD girls. Unlike LD boys, LD girls interacting with each other did not engage in high levels of disagreements, competitive statements or object-position struggles.

4c) Correlations with Peer Preference

NLD
more preferred children were more likely to:
-have their self focused (Me) statements responded to, especially with another Me statement
-have their initiations responded to with another Me statement

LD
more preferred children were less likely to:
-make suggestions and have them responded to
-have their Me statements responded to, especially with another Me statement

As with boys, preferred NLD girls were generally more active whereas preferred LD girls were generally more passive. It is of interest that in girls, unlike boys, Me statements were highly correlated with peer preference. In NLD girls they were also correlated positively with cooperation whereas in LD girls they were correlated positively with disruptiveness. The issue becomes the function of Me statements. Compared to boys, the girls gave few instructions, directives, We statements or even suggestions. Might descriptions of one's own behaviour (eg., I'm taping it) be a subtle form of giving instructions, especially when responded to with imitation?

VERBAL EXCHANGE INVENTORY

Demands of the other child/children:

Behaviour	Example
Directives	Put it back! Move over! Give me the tape
Demands in the form of an information statement	I think my pipe cleaners are next to you
Demands in the form of a question for information	Do you have the glue?
Indirect demand	I need some pipe cleaners
Polite request	Please pass the sticks
Cautionary	Watch it!
Instruction	Here's the way it works. First you....
Roles to both	I'll make its head and you work on the body

Group Statements (including group demands, suggestions for group):

Behaviour	Example
Hafta wanna	We hafta tape it together
Rule	They said we have to work on it together
Requirements for the other child or group	You should tape it better
We both (or We ...)	We built the best ship!
We against others	We hate Clary
Suggestions	You might use the other rocket
Suggestion in question form	How about a green tower?
Let's	Let's use blue
Question wanna	You wanna build a cabin?

Individual/Self-focus statements/Attention getting:

Behaviour	Example
Me	I did it
Attention getters	Hey guys...Look at me!
Let me	Let me do it!
Wanna	I wanna build a cabin
Justification	I did it because he's busy
Copy	imitation of any behaviour
Narration	
Narration of own actions	I'll cut here, then....
Sarcasm/Derogation	Forget *that* cup/Lame brain!/What a jerk!
Feelings (expressed)	I hate school

Information Exchange:

Behaviour	Example
Conclusive information	This is a baby bug
Inconclusive information	I don't know
Question for information	How did you guys do this?
Question direction of group	What do we do now?
Question for agreement	OK?
Ask opinion	Like my flag?
Give opinion	I think it's funny. That's a neat zapper
Agreement and acknowledgement	OK. Yes. Right
Clarified agreement	Yes, or the other one
Disagreement	No
Disagreement with rationale	No, because it won't work
Request for clarified message	Which one?
Clarified message	The green cup next to your hand
Nonclarified message	*That* one
Request for repetition	What? Why?

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